

#2

OIPE

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/918,740

DATE: 08/08/2001

TIME: 11:00:31

Input Set : A:\kas-103xc1.txt

Output Set: N:\CRF3\08082001\I918740.raw

ENTERED

5 <110> APPLICANT: Hahn, Frederick
7 Kuehnle, Adelheid
11 <120> TITLE OF INVENTION: Manipulation of genes of the mevalonate and isoprenoid pathways to
12 create novel traits in transgenic organisms
16 <130> FILE REFERENCE: KAS-103XC1
C--> 19 <140> CURRENT APPLICATION NUMBER: US/09/918,740
C--> 19 <141> CURRENT FILING DATE: 2001-07-31
19 <150> PRIOR APPLICATION NUMBER: 60/221,703
21 <151> PRIOR FILING DATE: 2000-07-31
23 <160> NUMBER OF SEQ ID NOS: 76
27 <170> SOFTWARE: PatentIn version 3.0
31 <210> SEQ ID NO: 1
33 <211> LENGTH: 57
35 <212> TYPE: DNA
37 <213> ORGANISM: Artificial Sequence
39 <220> FEATURE:
41 <223> OTHER INFORMATION: PCR primer containing Saccharomyces cerevisiae DNA ✓
45 <400> SEQUENCE: 1
46 ggactagtct gcaggaggag ttttaatgtc attaccgttc ttaacttctg caccggg 57
49 <210> SEQ ID NO: 2
51 <211> LENGTH: 96
53 <212> TYPE: DNA
55 <213> ORGANISM: Artificial Sequence
57 <220> FEATURE:
59 <223> OTHER INFORMATION: PCR primer containing S. cerevisiae DNA ✓
63 <400> SEQUENCE: 2
64 ttctcgagct taagagtagc aatatttacc ggagcagtta cactagcagt atatacagtc 60
66 attaaaactc ctctgtgaa gtccatggta aattcg 96
69 <210> SEQ ID NO: 3
71 <211> LENGTH: 56
73 <212> TYPE: DNA
75 <213> ORGANISM: Artificial Sequence ✓
77 <220> FEATURE:
79 <223> OTHER INFORMATION: PCR primer containing S. cerevisiae DNA ✓
81 <400> SEQUENCE: 3
82 tagcgccgc aggaggagtt catatgtcag agttgagagc cttcagtgcc ccaggg 56
85 <210> SEQ ID NO: 4
87 <211> LENGTH: 36
89 <212> TYPE: DNA
91 <213> ORGANISM: Artificial Sequence ✓
93 <220> FEATURE:
95 <223> OTHER INFORMATION: PCR primer containing S. cerevisiae DNA ✓
98 <400> SEQUENCE: 4
99 tttctgcagt ttatcaagat aagtttccgg atcttt 36
102 <210> SEQ ID NO: 5
104 <211> LENGTH: 41
106 <212> TYPE: DNA

RAW SEQUENCE LISTING

DATE: 08/08/2001

PATENT APPLICATION: US/09/918,740

TIME: 11:00:31

Input Set : A:\kas-103xcl.txt

Output Set: N:\CRF3\08082001\I918740.raw

```

108 <213> ORGANISM: Artificial Sequence
110 <220> FEATURE:
112 <223> OTHER INFORMATION: PCR primer containing S. cerevisiae DNA
115 <400> SEQUENCE: 5
116 ggaattcatg accgtttaca cagcatccgt taccgcaccc g          41
119 <210> SEQ ID NO: 6
121 <211> LENGTH: 45
123 <212> TYPE: DNA
125 <213> ORGANISM: Artificial Sequence
127 <220> FEATURE:
129 <223> OTHER INFORMATION: PCR primer containing S. cerevisiae DNA
133 <400> SEQUENCE: 6
134 ggctcgagtt aaaactcctc ttcttttggg agaccagtct ttgcg          45
137 <210> SEQ ID NO: 7
139 <211> LENGTH: 68
141 <212> TYPE: DNA
143 <213> ORGANISM: Artificial Sequence
145 <220> FEATURE:
147 <223> OTHER INFORMATION: PCR primer containing Arabidopsis thaliana DNA
149 <400> SEQUENCE: 7
150 gctctagatg cgcaggaggc acatatggcg aagaacgttg ggattttggc tatggatatc          60
152 tatttccc          68
155 <210> SEQ ID NO: 8
157 <211> LENGTH: 61
159 <212> TYPE: DNA
161 <213> ORGANISM: Artificial Sequence
163 <220> FEATURE:
165 <223> OTHER INFORMATION: PCR primer containing A. thaliana DNA
169 <400> SEQUENCE: 8
170 cgctcgagtc gacggatcct cagtgtccat tggctacaga tccatcttca cttttcttgc          60
172 c          61
175 <210> SEQ ID NO: 9
177 <211> LENGTH: 72
179 <212> TYPE: DNA
181 <213> ORGANISM: Artificial Sequence
183 <220> FEATURE:
185 <223> OTHER INFORMATION: PCR primer containing A. thaliana DNA
189 <400> SEQUENCE: 9
190 ccgctcgagc acgtggaggc acatatgcaa tgctgtgaga tgctgttgg atacattcag          60
192 attcctgttg gg          72
195 <210> SEQ ID NO: 10
197 <211> LENGTH: 71
199 <212> TYPE: DNA
201 <213> ORGANISM: Artificial Sequence
203 <220> FEATURE:
205 <223> OTHER INFORMATION: PCR primer containing A. thaliana DNA
208 <400> SEQUENCE: 10
209 ggggtacctg cggccggatc ccgggtcatg ttgttgttgt tgtogttgtc gttgctccag          60
211 agatgtctcg g          71

```

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/918,740

DATE: 08/08/2001

TIME: 11:00:31

Input Set : A:\kas-103xcl.txt

Output Set: N:\CRF3\08082001\I918740.raw

```

214 <210> SEQ ID NO: 11
216 <211> LENGTH: 74
218 <212> TYPE: DNA
220 <213> ORGANISM: Artificial Sequence
222 <220> FEATURE:
224 <223> OTHER INFORMATION: PCR primer containing S. cerevisiae DNA ✓
228 <400> SEQUENCE: 11
229 acaacaccgc ggcggccgcg tcgacgccgg cggaggcaca tatgtctcag aacgtttaca 60
231 ttgtatcgac tgcc 74
234 <210> SEQ ID NO: 12
236 <211> LENGTH: 53
238 <212> TYPE: DNA
240 <213> ORGANISM: Artificial Sequence
242 <220> FEATURE:
244 <223> OTHER INFORMATION: PCR primer containing S. cerevisiae DNA
246 <400> SEQUENCE: 12
247 gctctagagg atcctcatat cttttcaatg acaatagagg aagcaccacc acc 53
250 <210> SEQ ID NO: 13
252 <211> LENGTH: 65
254 <212> TYPE: DNA
256 <213> ORGANISM: Artificial Sequence
258 <220> FEATURE:
260 <223> OTHER INFORMATION: Oligonucleotide containing S. cerevisiae DNA
264 <400> SEQUENCE: 13
265 gctctagata cgtaggaggc acatatgagt gagcttatac ccgcctgggt tggtagacaga 60
267 ctggc 65
270 <210> SEQ ID NO: 14
272 <211> LENGTH: 61
274 <212> TYPE: DNA
276 <213> ORGANISM: Artificial Sequence
278 <220> FEATURE:
280 <223> OTHER INFORMATION: Oligonucleotide containing A. thaliana and S. cerevisiae DNA
282 <400> SEQUENCE: 14
283 cgctcgagcc cgggggatcc tcagccgcgc aggatcgatc cgaaaatccg gtcaagatgg 60
285 c 61
288 <210> SEQ ID NO: 15
290 <211> LENGTH: 72
292 <212> TYPE: DNA
294 <213> ORGANISM: Artificial Sequence ✓
296 <220> FEATURE:
298 <223> OTHER INFORMATION: Oligonucleotide containing S. cerevisiae DNA ✓
302 <400> SEQUENCE: 15
303 gctctagata cgtaggaggc acatatgagt tccaacaag agaaaaagga ttatgatgaa 60
305 gaacaattaa gg 72
308 <210> SEQ ID NO: 16
310 <211> LENGTH: 59
312 <212> TYPE: DNA
314 <213> ORGANISM: Artificial Sequence
316 <220> FEATURE:

```

RAW SEQUENCE LISTING

DATE: 08/08/2001

PATENT APPLICATION: US/09/918,740

TIME: 11:00:31

Input Set : A:\kas-103xcl.txt

Output Set: N:\CRF3\08082001\I918740.raw

```

318 <223> OTHER INFORMATION: Oligonucleotide containing S. cerevisiae DNA
322 <400> SEQUENCE: 16
323 cgctcgagcc cgggggatcc ttagcaacga tgaattaagg tatcttggaa ttttgacgc      59
325 <210> SEQ ID NO: 17
327 <211> LENGTH: 6215
329 <212> TYPE: DNA
331 <213> ORGANISM: Artificial Sequence
335 <220> FEATURE:
337 <221> NAME/KEY: misc_feature
339 <222> LOCATION: ()..()
341 <223> OTHER INFORMATION: Vector pBSNT27 containing Nicotiana tabacum DNA ✓
347 <400> SEQUENCE: 17
348 gcaacttttcg gggaaatgtg cgcggaaccc ctatttgttt atttttctaa atacattcaa      60
350 atatgtatcc gctcatgaga caataaccct gataaatgct tcaataatat tgaaaaagga      120
352 agagtatgag tattcaacat ttccgtgtcg cccttattcc cttttttgcg gcattttgcc      180
354 ttctgttttt tgctcaccca gaaacgctgg tgaaagtaaa agatgctgaa gatcagttgg      240
356 gtgcacgagt gggttacatc gaactggatc tcaacagcgg taagatcctt gagagttttc      300
358 gccccgaaga acgtttttcca atgatgagca cttttaaagt tctgctatgt ggcgcggtat      360
360 tatcccgtat tgacgcgggg caagagcaac tcggtcgccc catacactat tctcagaatg      420
362 acttggttga gtactcacca gtcacagaaa agcatcttac ggatggcatg acagtaagag      480
364 aattatgcag tgctgccata accatgagtg ataacactgc ggccaactta cttctgacaa      540
366 cgatcggagg accgaaggag ctaaccgctt ttttgacaaa catgggggat catgtaactc      600
368 gccttgatcg ttgggaaccg gagctgaatg aagccatacc aaacgacgag cgtgacacca      660
370 cgatgcctgt agcaatggca acaacgttgc gcaaactatt aactggcgaa ctacttactc      720
372 tagcttcccg gcaacaatta atagactgga tggaggcgga taaagttgca ggaccattc      780
374 tgcgctcggc ccttcgggtt ggctggttta ttgctgataa atctggagcc ggtgagcgtg      840
376 ggtctcgcgg tatcattgca gcaactgggc cagatggtaa gccctcccgt atcgtagtta      900
378 tctacacgac ggggagtcag gcaactatgg atgaacgaaa tagacagatc gctgagatag      960
380 gtgcctcact gattaagcat tggttaactgt cagaccaagt ttactcatat atactttaga      1020
382 ttgattttaa acttcatttt taatttaaaa ggatctaggt gaagatcctt tttgataatc      1080
384 tcatgaccaa aatcccttaa cgtgagtttt cgttccactg agcgtcagac cccgtagaaa      1140
386 agatcaaagg atcttcttga gatccttttt ttctgcgcgt aatctgctgc ttgcaacaa      1200
388 aaaaaccacc gctaccagcg gtggtttgtt tgccggatca agagctacca actctttttc      1260
390 cgaaggtaac tggcttcagc agagcgcaga taccaaatac tgtccttcta gtgtagccgt      1320
392 agttaggcca ccaactcaag aactctgtag caccgcctac atacctcgt ctgctaatec      1380
394 tgttaccagt ggctgctgcc agtggcgata agtcgtgtct taccgggttg gactcaagac      1440
396 gatagttacc ggataaggcg cagcggtcgg gctgaacggg gggttcgtgc acacagccca      1500
398 gcttggagcg aacgacctac accgaactga gatacctaca gcgtgagcta tgagaaagcg      1560
400 ccacgcttcc cgaagggaga aaggcggaca ggtatccggt aagcggcagg gtcggaacag      1620
402 gagagcgcac gagggagctt ccagggggaa acgcctggta tctttatagt cctgtcgggt      1680
404 ttgccacct ctgacttgag cgtcgatttt ttgtatgctc gtcagggggg cggagcctat      1740
406 ggaaaaacgc cagcaacgcg gccctttttac ggttccctggc cttttgctgg ccttttgctc      1800
408 acatgtttct tctcggttta tcccctgatt ctgtggataa ccgtattacc gcctttgagt      1860
410 gagtgatac gcctcgccgc agccgaacga ccgagcgag cgagtcagtg agcgaggaag      1920
412 cggaagagcg cccaatacgc aaaccgcctc tccccgcgcg ttggccgatt cattaatgca      1980
414 gctggcacga caggtttccc gactggaaag cgggcagtga gcgcaacgca attaatgtga      2040
416 gttagctcac tcattaggca ccccagcctt tacactttat gcttccggct cgtatgttgt      2100
418 gtggaattgt gagcggataa caatttcaca caggaaacag ctatgaccat gattacgcca      2160
420 agctcgaaat taaccctcac taaagggaac aaaagctgga gctccaccgc ggtggcggcc      2220

```

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/918,740

DATE: 08/08/2001

TIME: 11:00:31

Input Set : A:\kas-103xcl.txt

Output Set: N:\CRF3\08082001\I918740.raw

422	gctctagaac	tagtggatct	tcttggtctgt	tattcaaaag	gtccaacaat	gtatatatat	2280
424	tggacatttt	gaggcaatta	tagatcctgg	aaggcaattc	tgattgggtca	ataaaaaatcg	2340
426	atttcaatgc	tatttttttt	ttgtttttta	tgagtttagc	caatttatca	tgaaaggtaa	2400
428	aaggggataa	aggaaccgtg	tggtgattgt	cctgtaaata	taagttgtct	tcctccatat	2460
430	gtaaaaaggg	aataaataaa	tcaattaaat	ttcgggatgc	ttcatgaagt	gcttctttcg	2520
432	gagttaaact	tcggtttgtc	catatttcga	gaaaaagtat	ctcttgtttt	tcattcccat	2580
434	tcccataaga	atgaatacta	tgattcgcgt	ttcgaacagg	catgaataga	gcactctatag	2640
436	gataacttcc	atcttgaaaag	ttatgtggcg	tttttataag	atatccacga	tttctctcta	2700
438	tttgtaatcc	aatacaaaaa	tcaattgggt	ccgttaaact	ggctatatgt	tgtgtattat	2760
440	caacgatttc	tacataaggc	ggcaagatga	tatcttgggc	agttacagat	ccaggacctt	2820
442	tgacacaaat	agatgcgtca	gaagttccat	atagattact	tcttaatata	atttctttca	2880
444	aattcattaa	aatttcatgt	accgattctt	gaatgcccg	tatggtagaa	tattcatgtg	2940
446	ggactttctc	agattttaca	cgtgtgatac	atgttccttc	tatttctcca	agtaaagctc	3000
448	ttcgcatcgc	aatgcctatt	gtgtcggctt	ggcctttcat	aagtggagac	agaataaagc	3060
450	gtccataata	aaggcgttta	ctgtctgttc	ttgattcaac	acacttccac	tgtagtgtcc	3120
452	gagtagatac	tgttactttc	tctcgaacca	tagtactatt	atttgattag	atcatcgaat	3180
454	cttttatttc	tcttgagatt	tcttcaatgt	tcagttctac	acacgtcttt	ttttcggagg	3240
456	tctacagcca	ttatgtggca	taggagttac	atcccgtacg	aaagttaata	gtataccact	3300
458	tcgacgaata	gctcgtaatg	ctgcatctct	tcgagaccg	ggacctttta	tcatgacttc	3360
460	tgctcgttgc	ataccttgat	ccactactgt	acggatagcg	tttgcgtctg	cggtttgagc	3420
462	agcaaacggt	gttcctcttc	tcgtaccttt	gaatccagaa	gtaccggcgg	aggaccaaga	3480
464	aactactcga	ccccgtacat	ctgtaacagt	gacaatggta	ttattgaaac	ttgcttgaac	3540
466	atgaataact	ccctttggta	ttctacgtgc	acccttacgt	gaaccaatac	gtccattcct	3600
468	acgcgaacta	attttcggta	tagcttttgc	catattttat	catctcgtaa	atatgagtca	3660
470	gagatataatg	gatataatcca	tttcatgtca	aaacagattc	tttatttgta	catcggctct	3720
472	tctggcaagt	ctgattatcc	ctgtcttctgt	ttatgtctcg	ggttggaaca	aattactata	3780
474	attcgtcccc	gcctacggat	tagtcgacct	ttttcacaaa	ttttacgaac	ggaagctctt	3840
476	attttcatat	ttctcattcc	ttaccttaat	tctgaatcta	tttcttggaa	gaaaataagt	3900
478	ttcttgaaat	ttttcatctc	gaattgtatt	cccacgaaag	gaatggtgaa	gttgaaaaac	3960
480	gaatccttca	aatctttggt	gtggagtoga	taaattatac	gccctttggt	tgaatcataa	4020
482	ggacttactt	caattttgac	tctatctcct	ggcagtatcc	gtataaaact	atgccggatc	4080
484	tttctgaaa	cataatttat	aatcagatct	aaacaaaccc	ggaacagacc	gttgggaagc	4140
486	gattcagtaa	ttaaagcttc	atgactcctt	tttgggttct	aaagtccctt	tgaggatatca	4200
488	actaataaga	aagatattag	acaaccccc	ttttttcttt	ttcacaaata	ggaagtttcg	4260
490	aatccaattt	ggatattaaa	aggattacca	gatataacac	aaaatctctc	cacctattcc	4320
492	ttotagtoga	gcctctcggg	ctgtcattat	acctcgagaa	gtagaaagaa	ttacaatccc	4380
494	cattccacct	aaaattcgcg	gaattcgttg	ataattagaa	tagattcgtg	gaccagggtcg	4440
496	actgattcgt	tttaaattta	aaatattttct	ataggggtctt	ttcctattcc	ttctatgtcg	4500
498	cagggttaaa	acaaaaaaat	atttggtttt	ttctcgatgt	tttctcacgt	tttcgataaa	4560
500	accttctcgt	aaaagtattt	gaacaatatt	ttcggtaata	ttagtagatg	ctattcgaac	4620
502	cacctttttt	cgatccatat	cagcatttcg	tatagaagtt	attatctcag	caatagtgtc	4680
504	cctacccatg	atgaactaaa	attattgggg	cctccaaatt	tgatataatc	aacgtgtttt	4740
506	ttacttattt	tttttttgaa	tatgatatga	attattaaag	atatatgcgt	gagacacaa	4800
508	ctactaatta	atctattttct	ttcaaatacc	ccactagaaa	cagatcacaa	tttcatttta	4860
510	taataacctcg	ggagctaatg	aaactatttt	agtaaaattt	aattctctca	attcccgggc	4920
512	gattgcacca	aaaattcagag	ttccttttga	tttctctcct	tcttgatcaa	taacaactgc	4980
514	agcattgtca	tcatatcgta	ttatcatccc	gttgctcact	ttgagttctt	tacagggtccg	5040
516	cacaattaca	gctctgacta	cttctgatct	ttctaggggc	atatttggtg	cggcttcttt	5100
518	gatcacagca	acaataacgt	caccaatatg	agcatatcga	cgattgctag	ctcctatgat	5160

VERIFICATION SUMMARY

PATENT APPLICATION: US/09/918,740

DATE: 08/08/2001

TIME: 11:00:32

Input Set : A:\kas-103xcl.txt

Output Set: N:\CRF3\08082001\I918740.raw

L:19 M:270 C: Current Application Number differs, Replaced Current Application No

L:19 M:271 C: Current Filing Date differs, Replaced Current Filing Date